

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
18 August 2005 (18.08.2005)

PCT

(10) International Publication Number  
**WO 2005/074637 A3**(51) International Patent Classification<sup>7</sup>: **C07C 17/06**(21) International Application Number:  
PCT/US2005/003429

(22) International Filing Date: 28 January 2005 (28.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/540,612 30 January 2004 (30.01.2004) US(71) Applicant (for all designated States except US): **PCBU SERVICES, INC.** [US/US]; 300 Delaware Ave., Suite 1269, Wilmington, DE 19801 (US).

(72) Inventors; and

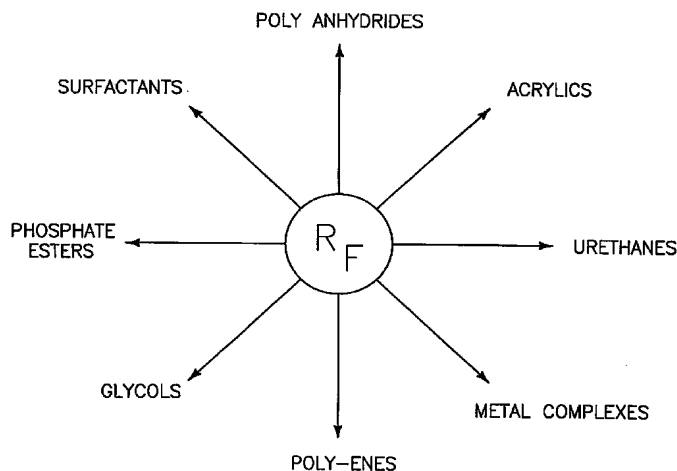
(75) Inventors/Applicants (for US only): **BOGGS, Janet** [US/US]; 6925 N. 900 East, Brownsburg, IN 46112 (US). **BRANDSTADTER, Stephan, M.** [US/US]; 3946 N. Washington Blvd., Indianapolis, IN 47906 (US). **CHIEN, John** [US/US]; 3318 Humbolt Street, West Lafayette, IN 47906 (US). **COHN, Mitchel** [US/US]; 3029 Courthouse Drive, Apartment 2B, West Lafayette, IN 47906 (US). **EDWARDS, Bradley, E.** [US/US]; 3704 Woodcliff Drive, Lafayette, IN 47905 (US). **HEDRICK, Victoria** [US/US]; 9262 South 300 E., Brookston, IN 47923 (US). **JACKSON, Andrew** [US/US]; 3346 WhirlAway Court, West Lafayette, IN 47906 (US). **LEMAN, Gregory** [US/US]; 3319 Crawford Street, West Lafayette, IN 47906 (US). **AMEDURI, Bruno** [FR/FR]; 26, rue Louis Roumieux, F-34090 Montpellier (FR). **KOSTOV, George, K.** [BG/FR]; App. 103, Res Le Mas Vaneau, 189, rue Edmond Lautard, F-34080 Montpellier (FR).(74) Agents: **HYTA, Robert, C.** et al.; Wells St. John P.S., 601 West First Ave., Suite 1300, Spokane, WA 99201-3828 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: PRODUCTION PROCESSES AND SYSTEMS, COMPOSITIONS, SURFACTANTS, MONOMER UNITS, METAL COMPLEXES, PHOSPHATE ESTERS, GLYCOLS, AQUEOUS FILM FORMING FOAMS, AND FOAM STABILIZERS



(57) Abstract: Production processes and systems are provided that include reacting halogenated compounds, dehalogenating compounds, reacting alcohols, reacting olefins and a saturated compounds, reacting reactants having at least two -CF<sub>3</sub> groups with reactants having cyclic groups. R<sub>F</sub>-compositions such as R<sub>F</sub>-intermediates, R<sub>F</sub>-surfactants, R<sub>F</sub>-monomers, R<sub>F</sub>-monomer units, R<sub>F</sub>-metal complexes, R<sub>F</sub>-phosphate esters, R<sub>F</sub>-glycols, R<sub>F</sub>-urethanes, and/or R<sub>F</sub>-foam stabilizers. The R<sub>F</sub> portion can include at least two -CF<sub>3</sub> groups, at least three -CF<sub>3</sub> groups, and/or at least two -CF<sub>3</sub> groups and at least two -CH<sub>2</sub>- groups. Detergents, emulsifiers, paints, adhesives, inks, wetting agents, foamers, and defoamers including the R<sub>F</sub>-surfactant composition are provided. Acrylics, resins, and polymers are provided that include a R<sub>F</sub>-monomer unit. Compositions are provided that include a substrate having a R<sub>F</sub>-composition thereover. Aqueous Film Forming Foam ("AFFF") formulations are provided that can include R<sub>F</sub>-surfactants and/or R<sub>F</sub>-foam stabilizers are provided.



WO 2005/074637 A3



FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW,

BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

- *with international search report*

**(88) Date of publication of the international search report:**  
2 February 2006

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*